P 290938Z AUG 08
FM AMEMBASSY BEIJING
TO SECSTATE WASHDC PRIORITY 9634
INFO DEPT OF ENERGY WASHINGTON DC
DEPT OF COMMERCE WASHDC
NOAA NMFS WASHDC
NSF WASHDC
NSC WASHDC
SECDEF WASHDC
AMEMBASSY MOSCOW
AMEMBASSY NEW DELHI
AMEMBASSY PARIS
AMEMBASSY TOKYO
AMEMBASSY SEOUL
USEU BRUSSELS
AMEMBASSY VIENNA
CHINA POSTS COLLECTIVE
AMCONSUL HONG KONG
NRC WASHDC
AIT TAIPEI 7056

UNCLAS BEIJING 003362

STATE FOR OES/SAT, EAP/CM, ISN/MDSP AND T, AND FOR ISN/NESS R. DELABARRE, P. COMELLA
USDOE FOR INTERNATIONAL/FREDRIKSEN, YOSHIDA, BISCONTI, AND BALLOU
USDOE FOR NNSA/SCHEINMAN, BIENIAWSKI, HUIZENGA, AND KROL
USDOE FOR NE/SPURGEON AND MCGINNIS
USNRC FOR ROSALES-COOPER
USDOC FOR 4420/ITA/MAC KASOFF
TOKYO FOR DOE ATTACHE CHERRY

SENSITIVE

E.O. 12958: N/A
TAGS: ENRG KNNP TPHY PREL CH
SUBJECT: EFFECTIVE NUCLEAR ADVOCACY IN CHINA

REF: A. 2008 Beijing 3055, B. 2008 Beijing 1137, C. 2008 Beijing 1136, D. 2008 Beijing 2863

¶1. (SBU) Summary and Comment. Effective advocacy for U.S. nuclear suppliers is essential to ensuring access to China's rapidly growing civil nuclear power market. With the exception of the bidding process that resulted in a contract for four Westinghouse AP1000 reactors, all reactor purchases to date have been largely the result of internal high level political decisions absent any open process. Even the Westinghouse decision was arguably a political one, which was quickly followed by subsequent non-competitive purchases of the competing French and Russian plants. China is currently in the process of building as many as 50 to 60 new nuclear plants by 2020; the vast majority will be the CPR-1000, a copy of 60's era Westinghouse technology that can be built cheaply and quickly and with the majority of parts sourced from Chinese manufacturers. Because both GE and Westinghouse have requested advocacy for nuclear sales in China, our efforts have been tempered by the requirement of being technology neutral; however, GE's ABWR and Westinghouse's AP1000 share one major technology and safety feature that is not matched by any of the domestic or international competitors in China's market, namely passive safety systems (i.e., no human intervention is required, the systems rely on physical phenomena such as natural convection). Pressing for open and transparent bidding processes for reactor sales (for complete plants or individual major component purchases), as well as advocating for China to pursue advanced reactor technology for future sites so that it's reactor fleet is not so reliant on aging technology through the next half century could be a more effective approach to bolster U.S. intrests in China's nuclear market. Regardless ofhow the United States decides to advocate, it should be done continuously and from a high level in order to keep up with the French and Rssians. End summary and comment.

Reactor urchases Largely a Political Decision
---------- -

¶2. (SBU) Throughout the history of China's civil nuclear program,

China has made a point of only pursuing PWR (pressurized water reactor) technology for its nuclear power fleet. Of China's existing reactor fleet, none have been chosen through open and transparent bid processes. (Note: China has one compleely indigenous reactor at Qinshan, designed and built by the state-owned China National Nuclear Corporation (CNNC), four reactors at Daya Bay that were imported and largely built by Framatome, predecessor to French nuclear conglomerate Areva (and direct copies of a Westinghouse reactor imported by France in the 1960s and then nationalized); two more reactors at Qinshan that are basically downgraded copies of the Daya Bay reactors (2/3 of the power); two Canadian natural uranium reactors at Qinshan (again purchased absent any international or internal bid process, said to have been a political decision by various contacts in the Chinese nuclear industry); and two Russian reactors at Tianwan (again no bid process, again a "political decision") End note).

Westinghouse Won, Sort of

¶3. (SBU) China's nuclear power program has only ever had one open bidding process. The three bidders were Westinghouse (the AP1000), Areva (EPR), and AtomStroyExport (VVER-1000, same as Tianwan). Westinghouse won the contract for four reactors, two each at Sanmen and Haiyang. Subsequently, China announced a $16 billion dollar deal with Areva for two EPRs, 20 years of fuel, and unspecified assistance on reprocessing fuel, and another deal for an unspecified

amount for two more VVER-1000s to be built at Tianwan (possibly linked to sale of enrichment equipment by Russia). Of the 30 or so reactors currently under construction or announced, there are 4 AP1000s, 2 EPRs, 2 VVERs, and nearly two dozen CPR-1000s, China's copy of the Framatome reactors at Daya Bay.

Opportunities for U.S. Companies

¶4. (SBU) Zhang Guobao of the National Energy Administration (NEA) has indicated on numerous occasions he plans to increase China's nuclear power capacity goal in 2020 to 50-60 GW (the current goal is 40 GW). This is equal to another 10-20 reactors that will need to be started within the next five to six years. The first of these will probably be at interior sites (Note: all of China's nuclear power is currently on the coast. End note). The urgency of building plants in interior provinces was highlighted by the widespread blackouts caused by the snowstorms this winter. Westinghouse has asked for advocacy for these interior plants; China has not yet announced any bidding process, and we do not even know for sure that there will be one. (Comment: At this juncture, it appears a formal bid process is highly unlikely. The most probable scenario is that a high level decision will be made on which technology to pursue, but there will be no full-plant contract; the sites will directly procure individual components, lessening potential scope for U.S. companies. End comment)

Potential Market for GE's ABWR

¶5. (SBU) In response to GE's request for advocacy on nuclear technology sales to China, an Embassy group met with Beijing-based GE representatives to better understand GE's opportunities in China. GE Nuclear was specifically not invited to bid in the previous round because China had no interest in GE's boiling water reactor (BWR) technology. According to GE nuclear representative Jordan Duan, GE China has heard from contacts within China's nuclear industry that China is warming up to the prospect of acquiring BWR technology, although the National Development and Reform Commission (NDRC) continues to espouse a Pressurized Water Reactor (PWR)-only platform. Duan said these industry contacts believe BWR technology would be useful to China's nuclear expansion because it will increase the number of available vendors from which major components can be sourced (CNNC specifically was worried that China's maximum capacity for CPR-1000 construction by 2020 is 30 GW), and BWRs use fewer major components (no pressurizer, no steam generator). GE and its Japanese partner Hitachi have already built four Advanced Boiling Water Reactors (ABWR), with another six under construction in Japan and Taiwan, and have a proven 37 month construction schedule, compared to at least 48 months for PWRs. The ABWR is the

only Gen III reactor currently operating. Finally, the operating ABWRs in Japan were very near the epicenter of a major earthquake last year but emerged undamaged and with no radiation releases; none of the competing technologies have been tested under such conditions (though they are also designed to survive strong earthquakes), Duan explained.

Comment

¶6. (SBU) GE requested strong U.S. Government advocacy to convince Chinese officials to look at BWR technology. Westinghouse is also asking for advocacy. A technology-neutral approach that supports both GE and Westinghouse could be to advocate that China adopt safer and more advanced Gen III reactor technology at a more rapid pace (in light of the overwhelming reliance on the obsolete CPR-1000 in

China's construction plans (ref A)). In order to avoid incidentally supporting the French Evolutionary Pressurized Reactor (EPR), the only other advanced reactor in play, advocacy efforts should focus on the advanced passive safety systems of both the ABWR and the AP1000. Both designs rely on natural physical processes, such as natural convection rather than pump-driven coolant flows, with no need for external power or human interaction. The EPR, on the other hand, relies on additional layers of active safety systems to decrease risk of an adverse event in case one layer fails. To increase opportunities for both GE and Westinghouse, we should also strongly advocate that China choose reactor technology for future sites through an open and transparent bidding process. Regardless of how the United States decides to advocate, it must be done continuously and from a high level if we want to keep up with the French and Russians, because ultimately this is both a political and economic decision. End comment.

RANDT

NNNN